

**PCT**WORLD INTELLECTUAL PROPERTY ORGANIZATION  
International Bureau

## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

|  |           |  |
|--|-----------|--|
| <b>(51) International Patent Classification <sup>6</sup> :</b><br><b>B65B</b>  | <b>A2</b> | <b>(11) International Publication Number:</b> <b>WO 97/06059</b><br><b>(43) International Publication Date:</b> 20 February 1997 (20.02.97)  |
| <b>(21) International Application Number:</b> PCT/US96/12797<br><b>(22) International Filing Date:</b> 6 August 1996 (06.08.96)<br><b>(30) Priority Data:</b><br>08/513,289 10 August 1995 (10.08.95) US<br><b>(71) Applicant:</b> GRAPHIC PACKAGING CORPORATION<br>[US/US]; Matthews & Cedar Hollow Road, Paoli, PA 19301 (US).<br><b>(72) Inventor:</b> WALSH, Joseph, C.; 121 8th Avenue, Longmont, CO 80501 (US).<br><b>(74) Agents:</b> KELLY, Joseph, J. et al.; Klaas, Law, O'Meara & Malkin, P.C., Suite 2225, 1999 Broadway, Denver, CO 80202 (US). |           | <b>(81) Designated States:</b> AL, AM, AT, AU, AZ, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TR, |

**FOR THE PURPOSES OF INFORMATION ONLY**

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

|    |                          |    |  |    |                    |
|----|--------------------------|----|--|----|--------------------|
| AM | Armenia                  | GB | United Kingdom                           | MW | Malawi             |
| AT | Austria                  | GE | Georgia                                  | MX | Mexico             |
| AU | Australia                | GN | Guinea                                   | NE | Niger              |
| BB | Barbados                 | GR | Greece                                   | NL | Netherlands        |
| BE | Belgium                  | HU | Hungary                                  | NO | Norway             |
| BF | Burkina Faso             | IE | Ireland                                  | NZ | New Zealand        |
| BG | Bulgaria                 | IT | Italy                                    | PL | Poland             |
| BJ | Benin                    | JP | Japan                                    | PT | Portugal           |
| BR | Brazil                   | KE | Kenya                                    | RO | Romania            |
| BY | Belarus                  | KG | Kyrgyzstan                               | RU | Russian Federation |
| CA | Canada                   | KP | Democratic People's Republic<br>of Korea | SD | Sudan              |
| CF | Central African Republic | KR | Republic of Korea                        | SE | Sweden             |
| CG | Congo                    | KZ | Kazakhstan                               | SG | Singapore          |
| CH | Switzerland              | LI | Liechtenstein                            | SI | Slovenia           |
| CI | Côte d'Ivoire            | LK | Sri Lanka                                | SK | Slovakia           |
| CM | Cameroon                 | LR | Liberia                                  | SN |                    |

METHOD FOR FORMINGCARTON BLANKSField Of The Invention

5           This invention relates generally to the formation of carton blanks and more specifically to the formation of carton blanks from a continuous laminate having at least a paperboard layer and a fluid impervious layer.

Background Of The Invention

10           In the manufacturing of carton blanks from a continuous web of material, it is customary to cut the continuous web into individual carton blanks and at the same time to cut the individual carton blank to form top  
15           and bottom panel portions. In some instances, the continuous web of material is a laminate of a paperboard material and a fluid impervious material and wherein the fluid impervious material is not secured to the paperboard material at locations for forming top and  
20           bottom panel portions in the paperboard material. Therefore, it is desirable to form the top and bottom panel portions in the paperboard material but not in the fluid impervious material.

Brief Description Of The Invention

25           This invention provides a method for forming carton blanks from a continuous laminate of at least a layer of a relatively rigid material and a layer of a relatively flexible fluid impervious material wherein modified cut  
30           lines in the individual carton blank extend through the layer of the relatively rigid material but do not damage the integrity of the layer of the relatively flexible fluid impervious material.

35           In a preferred embodiment of the invention, a continuous laminate of a relatively rigid material, such as a paperboard, and a relatively flexible fluid impervious material, such as polypropylene or a kraft



as a kraft paper, are located between portions of the relatively rigid material and portions of the relatively flexible fluid impervious material and are secured to the relatively flexible fluid impervious material. As  
5 described above, when the continuous laminate is cut into individual carton blanks, modified cut lines are formed in the individual carton blanks which modified cut lines extend through the relatively rigid material but not through the strips of a relatively flexible material and  
10 the relatively flexible fluid impervious material. In some instances, the modified cut lines can extend at least partially through the relatively flexible material and, if the relatively flexible fluid impervious material is thick enough, the modified cut line can extend through  
15 the relatively flexible material and into but not through the relatively flexible fluid impervious material.

#### Brief Description Of The Drawing

Illustrative embodiments of the invention are shown  
20 in the accompanying drawing in which:

Fig. 1 is a schematic illustration of apparatus for forming a continuous laminate;

Fig. 2 is a top plan view with portions broken away of a portion of the continuous laminate;

25 Fig. 3 is a cross-sectional view taken on the line 3-3 of Fig. 2 of one embodiment of the continuous laminate;

Fig. 4 is a cross-sectional view taken on the line 3-3 of Fig. 2 of another embodiment of the continuous  
30 laminate;

Fig. 5 is a top plan view of an individual carton blank having modified cut lines and fold lines formed thereon;

35 Fig. 6 is a top plan view illustrating an individual carton blank after portions of the relatively rigid material have been removed;

Fig. 7 is a view in cross-section illustrating the formation of different types of cut lines;

Fig. 8 is a view in cross-section illustrating the formation of different types of cut lines;

5 Fig. 9 is a top plan view of an individual carton blank after a portion has been removed;

Fig. 10 is a schematic view in cross-section of apparatus for removing a portion of an individual carton blank;

10 Fig. 11 is a top plan view of a portion of successive carton blanks prior to the removal of a portion thereof; and

Fig. 12 is a schematic view in cross-section illustrating apparatus for forming a cut line in a carton blank.

#### Detailed Description Of The Invention

In Fig. 1, there is a schematic illustration of apparatus for forming a continuous laminate for use in making carton blanks. A continuous web 2 of a relatively rigid material, such as paperboard, is pulled from the roll 4. A plurality of continuous strips 6 of a relatively flexible material, such as kraft paper, are pulled from the roll 8 and are positioned at spaced apart locations beneath the continuous web 2 of a relatively rigid material for movement therewith.

25 A continuous film 10 of a relatively flexible fluid impervious material, such as a plastic material such as polypropylene or a kraft paper coated with a plastic material such as polyethylene or other materials having similar characteristics, is pulled from the roll 12 and fed into an adhesive coating station 14. The continuous film 10 is fed between a driven gravure roll 16 having at least one raised surface and an idler pressure applying roll 18. A supply tank









and that the appended claims are intended to be construed to include such variations except insofar as limited by the prior art.

























